

Application No. 09/672,421  
Amendment dated June 17, 2004  
Reply to Office Action dated March 24, 2004  
Express Mail EV406652200US

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A caching system in a data processing system for identifying memory component identifiers associated with data in a storage device, comprising:
  - means for creating a cache of said memory component identifiers, wherein said memory component identifiers comprise identifiers that are invalid; and
  - means for managing said cache of memory component identifiers.
2. (Original) The caching system of claim 1, wherein said memory component identifiers further comprise one or more of the following:
  - identifiers that are moved from a first storage location to a second storage location;
  - identifiers that are deleted;
  - identifiers that are dynamic;
  - identifiers that are renamed; and
  - identifiers selected by a user.
3. (Original) The caching system of claim 1, wherein said memory component identifiers further comprise identifiers that are valid.
4. (Currently Amended) The caching system of claim 1, wherein said storage device is a data processing system comprising:
  - a disk drive including a disk in which is stored a tree structure of data located in directories and files; and
  - a main memory for storing data, said data stored in said memory being accessible at a rate ~~substantially~~ faster than the rate at which data stored on a disk can be accessed.
5. (Canceled)
6. (Original) The caching system of claim 1, further comprising:
  - means for updating said cache by removing a least recently used memory component identifier in accordance with a least recently used routine.
7. (Original) The caching system of claim 1, further comprising:

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- means for updating said cache by adding a most recently used memory component identifier in accordance with a most recently used routine.
8. (Original) The caching system of claim 1, further comprising:  
means for updating said cache by adding a most frequently searched memory component identifier in accordance with a most frequently searched routine.
9. (Original) The caching system of claim 1, further comprising:  
means for updating said cache by removing a least frequently searched memory component identifier in accordance with a least frequently searched routine.
10. (Canceled)
11. (Original) The caching system of claim 1, wherein said cache is one of a negative cache of memory component identifiers that are not associated with data in said storage device.
12. (Original) The caching system of claim 11, wherein said negative cache comprises a predetermined number of cache entries for storing a history of said memory component identifiers that are not associated with data in said storage device.
13. (Original) The caching system of claim 12, wherein said predetermined number of cache entries is based on usage of said memory component identifier.
14. (Original) The caching system of claim 11, wherein said negative cache comprises a percentage of cache entries stored in a cache system of valid memory component identifiers.
15. (Original) The system of claim 14, wherein said negative cache is used for storing a history of said memory component identifiers that are not associated with data in said storage device.
16. (Original) The caching system of claim 11, wherein the cache is further comprises a positive cache of memory component identifiers that have been written to at least one storage device.
- 17.-19. (Canceled)
20. (Currently Amended) A caching method in a data processing system for identifying memory component identifiers associated with data in a storage device, comprising:  
creating a cache of said memory component identifiers, wherein said memory component identifiers comprise identifiers that are invalid; and  
managing said cache of memory component identifiers.
21. (Original) The caching method of claim 20, wherein said memory component identifiers

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further comprise one or more of the following:

identifiers that are moved from a first storage location to a second storage location;  
identifiers that are deleted;  
identifiers that are dynamic;  
identifiers that are renamed; and  
identifiers selected by a user.

22. (Original) The caching method of claim 20, wherein said memory component identifiers further comprise identifiers that are valid.

23. (Currently Amended) The caching method of claim 20, wherein said storage device is a data processing system comprising:

a disk drive including a disk in which is stored a tree structure of data located in directories and files; and  
a main memory for storing data, said data stored in said memory being accessible at a rate ~~substantially~~ faster than the rate at which data stored on a disk can be accessed.

24. (Canceled)

25. (Original) The caching method of claim 20, further comprising:

updating said cache by removing a least recently used memory component identifier in accordance with a least recently used routine.

26. (Original) The caching method of claim 20, further comprising:

updating said cache by adding a most recently used memory component identifier in accordance with a most recently used routine.

27. (Original) The caching method of claim 20, further comprising:

updating said cache by adding a most frequently searched memory component identifier in accordance with a most frequently searched routine.

28. (Original) The caching method of claim 20, further comprising:

updating said cache by removing a least frequently searched memory component identifier in accordance with a least frequently searched routine.

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29. (Canceled)

30. (Original) The caching method of claim 20, wherein said cache is one of a negative cache of memory component identifiers that are not associated with data in said storage device.

31. (Original) The caching method of claim 30, wherein said negative cache comprises a predetermined number of cache entries for storing a history of said memory component identifiers that are not associated with data in said storage device.

32. (Original) The caching method of claim 31, wherein said predetermined number of cache entries is based on usage of said memory component identifier.

33. (Original) The caching method of claim 30, wherein said negative cache comprises a percentage of cache entries stored in a cache system of valid memory component identifiers.

34. (Original) The system of claim 33, wherein said negative cache is used for storing a history of said memory component identifiers that are not associated with data in said storage device.

35. (Original) The caching method of claim 30, wherein the cache is further comprises a positive cache of memory component identifiers that have been written to at least one storage device.

36. – 38 (Canceled)

39. (New) A caching system for identifying memory component identifiers associated with data in a storage device, comprising:

a disk drive including a disk in which is stored a tree structure of data located in directories and files;

a main memory storing data, said data stored in said memory being accessible at a rate faster than the rate at which data stored on a disk can be accessed;

means for creating a cache of said memory component identifiers, wherein said memory component identifiers comprise identifiers that are invalid, and said means for creating said cache further comprising means for creating in said main memory a first name cache, means for, in response to an initial request to open a specified file nested in a path of one or more directories, accessing said disk and determining that directory entries and file entries do not contain said specified file, means for storing in said first name cache a history of paths of said directory entries and said file entries that do not contain said specified file, means for, in response to a subsequent request to open said subsequent file, searching through said history of

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said first name cache to locate said directory entries and said file entries that do not contain said specified file, and means for returning a response that said specified file is not contained on said disk; and

means for managing said cache of memory component identifiers.

40. (New) A caching method for identifying memory component identifiers associated with data in a storage device, comprising:

conducting said method in a data processing system comprising a disk drive including a disk in which is stored a tree structure of data located in directories and files, and a main memory for storing data, said data stored in said memory being accessible at a rate faster than the rate at which data stored on a disk can be accessed;

creating a cache of said memory component identifiers, wherein said memory component identifiers comprise identifiers that are invalid, including creating in said main memory a first name cache, in response to an initial request to open a specified file nested in a path of one or more directories, accessing said disk and determining that directory entries and file entries do not contain said specified files, storing in said first name cache a history of paths of said directory entries and said file entries that do not contain said specified file, in response to a subsequent request to open said specified file, searching through said history of said first name cache to locate said directory entries and said file entries that do not contain said specified file, and returning a response that said specified file is not contained on said disk; and

managing said cache of memory component identifiers.